

on lower half bare, cheeks nearly one-half as broad as the eye height. eyes densely hairy. Apical cell entering costa far before the extreme wing tip, open, fourth longitudinal vein appendiculate beyond bend. Abdomen ovate, bearing discal and marginal macrochaetae, the hypopygium considerably exerted and doubled forward beneath the venter. Type, the following species.

***Spilochaetosoma californica* new species.**

*Male:* Robust, black, first and second antennal joints, palpi, tip of proboscis, sides of first three abdominal segments and hypopygium yellow. Frontal vitta opaque velvety dark brown, parafrontals and facialia silvery pollinose with a faint golden tinge in certain reflections. Sides of face approximately one-half as wide as the median depression, cheeks thickly beset with bristly black hairs. Proboscis short, shining black and chitinized on the intermediate third, fleshy at the tip. Front at vertex nearly one-half the eye width. Thorax gray pollinose, marked with four prominent black vittae. Postsutural dorso-central bristles three, sternopleurals four. Apical two-thirds of scutellum yellowish, bearing three pairs of long marginal macrochaetae and a strong discal pair. Legs black, front pulvilli about one and one-half times as long as the last tarsal joint. Middle tibiae bearing a row of four long stout bristles on the outer front side, the hind tibiae pectinate with a row of bristles of unequal length.

Hairs of abdomen depressed. Second abdominal segment bearing a discal and a marginal pair of macrochaetae, the third a discal pair and a marginal row, and the fourth segment a discal and marginal row. Hypopygium bearing many stout black bristles upon the first and second segments. Wings faintly infusate along the costa, veins brownish, the third longitudinal vein bearing six or seven bristles at its base, posterior end of hind cross-vein nearer the margin of the wing than to the small cross-vein. Calypteres whitish.

Described from a male specimen taken in the mountains near Claremont, Calif., by Mr. Carl F. Baker.

*Holotype:*—U. S. N. M. Cat. No. 20,930.

Under the head of notes and exhibition of specimens the following were given:

**THE ELATERID GENUS OISTUS OF CANDEZE.**

BY J. A. HYSLOP,

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The genus *Oistus* was described by Candeze to include two Mexican elaterids of the tribe Chalcolepidiini. The genus is very unsatisfactorily distinguished from the Oriental genus *Campsosternus*, the chief differential character used by the great

French Entomologist being the shape of the mandibles which, in a specimen of *Oistus sphenosomus* Cand. in the National Museum collection and determined by Mr. Champion, are decidedly acute at the tip while the mandibles of the specimens of *Oistus cacicus* Cand. in the same collection are truncate as in the original generic diagnosis. The genus includes at present, comprehending the species herein described, five species.

In a collection of miscellaneous elaterids collected by the field agents of the Office of Forest Insect Investigations and submitted to me for determination by Dr. A. D. Hopkins, I found a single female belonging to this genus which is described below.

***Oistus edmonstoni* sp. nov.**

Elongate, subparallel, depressed, shining. Color, sanguineous brown above; head, antennae, legs, and ventral surface almost black. Vestiture, long, silky and white. Head not margined in front, flattened, slightly concave and strongly punctate; mandibles acute at the tip; maxillary palpi long, terminal joint securiform; antennae moderately long and slender. Prothorax broader than long, sides nearly parallel, rounded in front, posterior angles divergent, lateral margins strongly swollen and sulcate, anterior margin rounded over the head, with a decided median emargination, posterior margin crenulate within the posterior angles; proplurae densely and strongly punctate; prosternum rounded in front with thin piece rugosely punctate, smooth and feebly punctate posteriorly. Meso-metasternal suture almost obliterated; mesosternum horizontal posteriorly and abruptly, perpendicularly deflexed in front. Posterior coxae gradually widened inwardly. Elytra four times as long as the prothorax, wider than pronotum, not striate but with three slightly elevated ridges; very finely punctate; sides parallel to apical third and then rather obliquely attenuated. Tarsi pilose beneath but not nearly so strongly as in *O. cacicus* Cand.; tarsal joints three and four very feebly produced below, not at all lobed. Length 27 mm., width 7.5 mm.

*Type*:—U. S. N. M. No. 21044, a female.

*Type locality*:—Ashland, Oregon, on cone of Douglas Fir, Sept. 23, 1913.

The type was collected by Mr. W. D. Edmonston for whom the species is named.

The following table will serve to separate the species now recognized:

- a. elytra metallic black or black with suture red.
  - b. entirely metallic black except the legs which are brown.
    - bb. prothorax red, elytra black with suture red.....*submetallicus*
    - aa. elytra reddish brown, yellowish or piceous.....*suturalis*

- c. tarsi broadly cordiform.  
 d. prothorax with smooth bare spots on either side of disc before middle, elytra marmorately pilose.....*cacicus*  
 dd. prothorax without smooth bare spots on the disc, vestiture of elytra not marmorate.....*sphenosomus*  
 cc. tarsi with joints feebly broadened, not cordiform.....*edmonstoni*

*Oistus* Candeze, Monogr. Elat. I, p. 338, 1857.

1. *Oistus cacicus* Cand. 1857 Monogr. Elat. I, p. 339, Pl. VI, fig. 5 (type of the genus by present designation). Champion 1894, Biol. Cent. Amer. Col. III, pt. 1, p. 292, Pl. XIII, fig. 8. *Ludius cacicus* Dej. 1833 Cat. ed. 3, p. 107, Cand., l.c. *Oistus griseosignatus* (Dupont i. litt.) Gem. and Har. Cat. Col. V, p. 1506.
2. *Oistus sphenosomus* Cand. 1857 Monogr. Elat. I, p. 339. Champion 1894, l.c., p. 292, Pl. XIII, fig. 7.
3. *Oistus suturalis* Champion. 1894 l.c. p. 553, Pl. XXIV, fig. 5. Schwarz 1906 Gen. Ins. 46, Pl. II, fig. 13.
4. *Oistus submetallicus* Dand. 1900 Ann. Soc. Ent. Belg., Vol. 44, p. 83.
5. *Oistus edmonstoni* Hyslop 1917 above.

## NOTES ON THE BIOLOGY OF SCHIZONOTUS SIEBOLDII RATZ.<sup>1</sup>

BY R. A. CUSHMAN,

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Very few cases are on record of chalcids feeding as external parasites on hosts unprotected by the tissue of their food plant or food substance or by their cocoons or other protection of the pupa. A notable example of this is found in the eulophid genus *Euplectrus*, the life-history of one species of which, *E. comstockii* Howard, is well known in its relation to the cotton worm. We are now able to add another species to the chalcids having this habit, *Schizonotus sieboldi* Ratz., a species introduced from Europe. In connection with his original description of this species (Ichn. d. Forstins., III, 1852, p. 230), Ratzeburg stated that it was reared by von Siebold from *Chrysomela populi*, and from the date of emergence judged that it must have been reared from full-grown larvae or pupae of the host.

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